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(54) **SPREADABLE LOW-FAT CHEESE AND MANUFACTURE THEREOF**

**STREICHFÄHIGER FETTARMER KÄSE UND HERSTELLUNG DAVON**

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## Description

[0001] Several methods are known in the art for manufacturing low-fat fresh cheese and in the last decennia an ultrafiltration step for concentrating the cheese milk is usually applied, like the one described in Deutsche Milchwirtschaft 35 1790-1795 (1984) and 36 1034 1036-41 (1985). In practice the structure and rheology of the products are not quite satisfactory what cannot be fully remedied by adding fat or cream after the ultrafiltration step. Additionally attempts have been made to improve the rheology by the addition of binding or structuring agents, e.g. non dairy products such as gelatin, carrageenan, starches, as well as additional whey protein.

In practice this resulted in organoleptic deterioration and/or an increase in ingredients to be declared.

[0002] It is an object of the invention to provide a low fat fresh cheese product having a spreadable character without using non-dairy binders or structuring agents or added whey protein. Of course this does not exclude the later addition of flavourants, herbs, spices, fruits, nuts, etc.

[0003] Another object of the invention is providing a simple process for manufacturing such a fresh cheese product. In this description and claims "low-fat" is used for 0-10 and preferably 0-7%wt. fat, calculated on total weight.

[0004] The invention provides thereto a spreadable low-fat fresh cheese devoid of non-dairy binding or structuring agents or added whey protein, prepared from an ultrafiltration or diafiltration retentate, having a dry matter content of over 25% wt. a fat content of 0-10 and preferably 0-7% wt. on total weight and a Stevens value in excess of 200 at 10°C.

[0005] A suitable process for manufacturing a fresh cheese of this type is by standardizing milk to the fat content as aimed at in the final product, subsequently adding an acidulant or an acidulating culture and a coagulating enzyme and allowing sufficient time for the pH to reach a value between 4.5 and 4.9 and preferably between 4.5 and 4.7 and the casein to curdle, thereafter heating the mixture to a temperature between 45 and 60°C, ultrafiltrating and/or diafiltrating the mixture to a dry matter content over 25% wt, then heating to a temperature between 65°C and protein denaturing temperature, and preferably between 70 and 75°C, thereafter homogenising at a pressure between 10 and 40 MPa and finally filling into containers while keeping the product free of non-dairy binding or structuring agents or added whey protein.

[0006] A preferred example of this process will be described for elucidation:

Skim milk is standardized with cream to a fat content of 1.7% wt. on total weight. After pasteurization an usual starter culture and rennet are added. This cheese milk is kept for 18 hours at 23°C until the pH value is about 4.6. After a quick heat treatment at 48°C the curdled

cheese milk is ultrafiltrated until the solids content of the retentate is 28% wt. After addition of flavourants such as cooking salt the mixture is heated to 70°C, homogenized at 20 MPa and filled into 250 ml containers. After 2 days storage at 5°C the Stevens value of the fresh cheese is 300g, using a 12.7mm cylinder at 1mm/sec speed and a penetration depth of 20mm when measured at 10°C.

[0007] A more fresh taste can be obtained with only slightly modifying the rheology by adding 5-15% fresh yoghurt together with the cooking salt.

[0008] Similar results are obtained when milk having a fat content of 0.7% wt. is used as the only starting material, resulting in a fresh cheese having 4% wt. fat on total weight. The Stevens value of this product is 300g at 10°C.

## Claims

1. Spreadable low fat fresh cheese devoid of non-dairy binding or structuring agents or added whey protein, prepared from an ultrafiltration or diafiltration retentate, having a dry matter content of over 25% wt., a fat content of 0-10 and preferably 0-7% wt. and a Stevens value in excess of 200 at 10°C.
2. A process for manufacturing a spreadable low-fat fresh cheese by standardizing milk to the fat content as aimed at in the final product, subsequently adding an acidulant or an acidulating culture and a coagulating enzyme and allowing sufficient time for the pH to reach a value between 4.5 and 4.9 and the casein to curdle, thereafter heating the mixture to a temperature between 45 and 60°C, ultrafiltrating and/or diafiltrating the mixture to a dry matter content over 25% wt, then heating to a temperature between 65°C and protein denaturing temperature, and preferably between 70 and 75°C, thereafter homogenising at a pressure between 10 and 40 MPa and finally filling into containers while keeping the product free of non-dairy binding or structuring agents or added whey protein.

## Patentansprüche

1. Streichfähiger fettarmer Frischkäse, der von Nichtmilchbinde- oder Strukturierungsmitteln oder zugefügtem Molkeprotein frei ist, hergestellt aus einem Ultrafiltrations- oder Diafiltrationsretentat, der einen Trockensubstanzgehalt von mehr als 25 Gew.-%, einen Fettgehalt von 0 bis 10 und vorzugsweise 0 bis 7 Gew.-% und einen Stevens-Wert von mehr als 200 bei 10°C aufweist.
2. Verfahren zur Herstellung eines streichfähigen fettarmen Frischkäses durch Standardisieren von

Milch auf den im Endprodukt angestrebten Fettgehalt, anschließendes Zugabe eines Ansäuerungsmittels oder einer ansäuernden Kultur und eines koagulierenden Enzyms und Belassen bei einer ausreichenden Zeit zum Erreichen eines pH-Wertes zwischen 4,5 und 4,9 und zum Gerinnen des Kaseins, worauf die Mischung auf eine Temperatur zwischen 45 und 60°C erhitzt, die Mischung auf einen Trockensubstanzgehalt von mehr als 25 Gew.-% ultrafiltriert und/oder diafiltriert wird, sie dann auf eine Temperatur zwischen 65°C und der Proteindenaturierungstemperatur und vorzugsweise zwischen 70 und 75°C erhitzt wird, worauf bei einem Druck zwischen 10 und 40 MPa homogenisiert und schließlich in Behälter abgefüllt wird, wobei das Produkt von Nichtmilchbinde- und Strukturierungsmitteln und zugefügtem Molkeprotein freigehalten wird.

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### Revendications

1. Fromage frais allégé en graisse qu'on peut tartiner sans agents de liaison ou structurants ni protéine de petit lait ajoutée, préparé à partir d'un produit de rétention d'ultrafiltration ou de diafiltration, ayant une teneur en matière sèche de plus de 25% en poids, une teneur en graisse de 0 à 10 et, de préférence, 0 à 7% en poids, et une valeur STEVENS en excès de 200 à 10°C.
2. Procédé de fabrication d'un fromage frais allégé en graisse qu'on peut tartiner, réalisé en normalisant le lait à la teneur en graisse visée dans le produit final, en ajoutant ensuite un acidulant ou une culture acidulante et une enzyme de coagulation et en allouant une durée suffisante pour que le pH atteigne une valeur entre 4,5 et 4,9 et que la caséine coagule, en chauffant ensuite le mélange à une température entre 45 et 60°C, en ultrafiltrant et/ou diafiltrant le mélange jusqu'à une teneur en matière sèche dépassant 25% en poids, en chauffant ensuite à une température entre 65°C et la température de dénaturation des protéines, et de préférence entre 70 et 75°C, ensuite en homogénéisant à une pression entre 10 et 40 MPa et en remplissant finalement des récipients tout en conservant le produit exempt d'agents de liaison ou structurants non laitiers ou de protéine de petit lait ajoutée.

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